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THE LAND SHELLS OF THE CAROLINE ISLANDS.

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VERY little has hitherto been done for the exploration of the Carolines which, being by no means mere coral atolls but including several islands of comparatively large size and elevated basaltic hills, might be supposed to contain a much more extensive and varied molluscan fauna than the meagre result of the investigations as yet made would lead us to believe. We had an analogous case in the neighbouring group of the *Mariannes*, of which Kobelt gave in 1879 a list of 14 species of land shells. My friend Quadras collected there for a couple of months and the result was that we know now of 74 species, 47 being new to science. He did not go beyond the island of Guam, whilst the northern islands of the groups, Tinian, Saypan, etc., if smaller, present elevations of considerable altitude. In the same way we may expect rich results from a thorough exploration of the Carolines by a specialist. What we know of them at present, is due to the French expeditions of the "Coquille" and "Astrolabe," and some collections made by American missionaries, Captain Brenchley and Mr. Finsch. A German trader, Mr. Etscheid, was kind enough to collect for me in the neighbourhood of the Spanish settlement on Ponape, and especially sent me some bags of vegetable mould from the bush, in which I found a number of minute shells. In 1895 Mr. Kubary returned from New Guinea to his old residence at Ponape and at once began conchological researches. He was the first to collect in the more elevated parts of the islands and although he did not get much higher than about 100 metres, he met at once with a number of novelties of which *Flammulina* and a *Quadrasiella* are the most remarkable. Unfortunately he died in 1896.

On the localities in which Kubary collected he wrote me the following notes: In the North of the island are situated *Mpomp* and *Meitsik*, not far from the sea, and opposite to them the small island of *Djokoits*. The soil consists of yellow clay which has been formed by decomposed basalt, and is covered by dense bush. The ground gradually rises to the chain of the hills in the interior. The soil in the bush is covered by a thick layer of mouldering leaves in which the *Partulae* and bigger *Trochomorphae* are very common. *Trochomorpha nigrifella* and its sub-species *contigua* were found on trees and shrubs, the *Pupinae* and *Helicinae* partly in the mould and on *Pandanus* and tree-ferns.

Fam. **NANINIDAE.**

1.—**Lamprocystis palaënsis** (O. Semp.).

Microcystis palaënsis, O. Semp. MS.; C. Semper, Reisen Phil., iii, p. 45, t. 2, f. 16.—*Helix palaënsis*, Pfr., Mon. Hel., vii, p. 94.—*Nanina (Microcystis) palaënsis*, Tryon, Man. Conch., ii, p. 120, t. 40, f. 37.

Hab.—Pelew Islands (Semper), Yap (Kubary).

An intermediate form between *L. misella*, Fér., of the Mariannes and *pseudosuccinea*, m., of the Philippine Islands.

2.—**Lamprocystis frivola** (Pse.).

Helix frivola, Pease in Tryon, Amer. Journ. Conch., 1866, ii, p. 290, t. 21, f. 3.—Pfr., Mon. Hel., vii, p. 72.—*Helicopsis frivola*, Pse., P.Z.S., 1871, p. 475.—*Nanina (Microcystis) frivola*, Pfr., Nomencl., p. 37.—Tryon, Man. Conch., ii, p. 118, t. 38, figs. 62—64.

Hab.—Ualan (Pease).

Pfeiffer writes Owalao, Tryon Oualau, but I am sure Pease obtained this species from Ualan or Kusaye, one of the Caroline Islands, from whence he described other species. I do not think Ovalu of the Viti group was meant.

3.—**Kaliella tenuisculpta**, Mlldff.

Kaliella tenuisculpta, Mlldff., Jahresb. Senck. Nat. Ges., 1893, p. 69.

Hab.—Ponape (Kubary).

Most probably introduced from Manila, where it is common in gardens.

4.—**Kaliella doliolum** (Pfr.).

Helix doliolum, Pfr., Mon. Hel., i, p. 50.—*Vitrinoconus doliolum*, Semp., l.c., p. 93.—Tryon, Man. Pulm., i, p. 160, t. 36,

f. 23.—*Kaliella doliolum*, Mildff., J. D. M. G., xiv, p. 268, Verz. Phil., 1898, no. 150.

Hab.—Ponape (Kubary).

Here, as well as at Guam, Mariannes, most probably introduced from the Philippine Islands, on which it is widely distributed.

5.—*Hemiplecta sowerbyana* (Pfr.).

Helix sowerbyana, Pfr., Symb., i, p. 36.—Phil. Icon. i, 2, p. 2, t. 2, f. 1.—Chemn., ed. ii, *Helix*, no. 157, t. 25, figs. 5—6.—Mon. Hel., i, p. 68.—Reeve, Conch. Icon., Hel., no. 386, t. 74.—*Nanina (Rhysota) sowerbyana*, Alb., Hel., p. 61.—Alb.-Marts., Hel., p. 54.—Ad., Gen., p. 224.—Pfr., Nomencl., p. 53.—Martens, Conch. Mitth., 1881, i, p. 93.—Tryon, Man. Conch., ii, p. 29, t. 8, f. 25.—*Helix pachistoma*, Hombr. et Jacq., Voy. Pol. Sud. Atl., t. 3, figs. 10—12.—*Helix hogoleuensis*, Le Guill., Rev. Zool., 1845, p. 187.—Pfr., Mon. Hel., i, p. 329.—*Macrocyclis hogoleuensis*, Ad., Gen., p. 203.

Hab.—Hogolu = Ruk (Hombron et Jacquinot, Kubary).

Prof. v. Martens cites O. Finsch as the collector of this species, but as the late Mr. Kubary told me, he gave the shells collected by him at Ruk to Mr. Finsch, who himself did not collect on that island.

The soft parts of this mollusc have not been studied, but the sculpture of the shell agrees with that of *Hemiplecta* rather than that of *Rhysota*.

Fam. TROCHOMORPHIDAE.

6.—*Trochomorpha (Nigritella) approximata* (Le Guill.).

Helix approximata, Le Guill., Rev. Zool., 1842, p. 139.—Pfr., Mon. Hel., i, p. 206, iii, p. 160.—Chemn., ed. ii, Hel., no. 773, t. 125, figs. 5—6.—*Helix (Trochomorpha) approximata*, Albers, Hel., p. 116.—*Nanina (Discus) approximata*, Alb.-Marts., Hel., p. 255.—*Trochomorpha approximata*, Pease, P. Z. S., 1871, p. 474.—*Tr. (Videna) approximata*, Tryon, Man. Conch., iii, p. 90, t. 18, figs. 64—65.—*Helix marmorosa*, Hombr. et Jacq., Voy. Pol. Sud. Atl., t. 7, figs. 5—8.—*Helix approximata* var. *marmorosa*, Pfr., Mon. Hel., iii, p. 160.—Chemn. ed. ii, t. 125, figs. 7—8.—*Tr. approximata* var. *marmorosa*, Tryon, l.c., t. 18, figs. 66—67.

Hab.—Hogolu = Ruk (Hombron et Jacquinot, Kubary).

The habitats Ternate and Sandwich Islands, as given by Le Guillou and Pfeiffer, are certainly erroneous.

There are no differences to justify the separation of *marmorosa* even as a variety. The distinguishing characters mentioned by Pfeiffer are quite within the range of individual variation.

7.—Trochomorpha (Nigritella) entomostoma (Hombr. et Jacq.).

Helix entomostoma, Hombr. et Jacq., Voy. Pol. Sud. Atl., t. 7, figs. 22—25.—Pfr., Mon. Hel., iv, p. 113.—*Tr. entomostoma*, Pse., P. Z. S., 1871.—Tryon, Man. Conch., iii, p. 79, t. 15, figs. 43—45.

Hab.—Hogolu = Ruk (Hombr. et Jacquinot, Kubary).

8.—Trochomorpha (Nigritella) kuesteri (Pfr.)

T. peranguste perforatà, orbiculato-convexa, solida, confertim plicato-striatula, fulvo-castanea aut atrofusca, subopaca. Spira plus minusve elevata, lateribus convexis apice obtuso pallidiore. Anfr. 7 lentissime accrescentes, sutura filari disjuncti, convexiusculi, ultimus non descendens, ad peripheriam subacute carinatus, basi convexiusculus, medio subplanatus, circa perforationem subexcavatus, confuse angulatus. Apertura diagonalis, rotundato-triangularis, parum excisa, peristoma rectum, margine supero simplice retrorsum arcuato, saepe deflexo, basali strictiusculo, valde calloso-incrassato, columellari brevissimo, tenui, subexciso.

Diam. maj. 22, alt. 13·5 mm.
 „ „ 20, „ 13·5 mm.
 „ „ 19, „ 12·5 mm.

Diam. maj. 18·5, alt. 11·5 mm.
 „ „ 18, „ 9·5 mm. (Pfr.).

Helix kuesteri, Pfr., Z. f. Mal, 1845.—Chemn., ed. ii, Hel., no. 586, t. 92, figs. 14—15.—Mon. Hel., i, p. 215.—*Tr. kuesteri*, Pease, P. Z. S., 1871, p. 474.—Tryon, Man. Conch., iii, p. 80, t. 15, figs. 48—49.

Var. nov. ex colore: *fulvizona*. Ad carinam taenia fulva cincta.

Hab.—Ponape (Finsch, Etscheid, Kubary).

8a.—Trochomorpha kuesteri sub-sp. transitans, nov.

T. umbilico paullo majore, anfr. paullo minus convexis, basi paullo magis applanata.

Hab.—Ponape (Etscheid, Kubary).

8b.—Trochomorpha kuesteri sub-sp. goniomphala, Pfr.

T. umbilico magis aperto, carina acutiore, anfr. subplanis aut fere planis, angulo circa umbilicum magis distincto, basi planiore, colore pallidiore (corneo-fulvo).

Diam. 20·5, alt. 9·5 mm. (Pfr.)
 „ 20·5, „ 12·5 mm.
 „ 21, „ 11·5 mm.

Diam. 21·5, alt. 14 mm.
 „ 22, „ 11·5—12 mm.

Helix goniomphala, Pfr., P. Z. S., 1854, p. 147. — Mon. Hel., iv, p. 184. — *Tr. (Nigritella) goniomphala*, Mart., Ostas., p. 247. — Tryon, Man. Conch., iii, p. 78, t. 15, f. 34.

Hab.—Ponape (Tryon, Etscheid, Kubary).

Pfeiffer mentioned no habitat at first, later he gave Viti as such on Thomson's authority, which must be erroneous. Tryon states Ponape to be the true locality, but does not mention the collector. I received the form abundantly from Ponape.

8c.—Trochomorpha kuesteri sub-sp. intermedia, nov.

T. umbilico sat aperto (ut goniomphala) sed minus distincte angulato, anfr. $6\frac{1}{2}$ magis convexis quam in sub-sp. goniomphala sed minus quam in typo, sutura minus distincte marginata, carina minus exserta.

Hab.—Ponape (Etscheid, Kubary).

The abundant material which I received of all these forms from my friends at Ponape has taught me that *T. kuesteri* and *goniomphala* cannot be separated specifically, but at most as sub-species. Unfortunately the collections, made at different localities in the islands, were not always separated, so that it cannot even be determined whether the different forms are local races connected by transitory varieties or whether they occur promiscuously at the same locality. In the latter case they could not be regarded as sub-species, but would appear to be individual variations. I believe, however, that we have here one of those interesting series of forms, for which Messrs. Sarasin, in their splendid work on the land shells of the Celebes, have introduced the new appellation of "Formenkette," i.e. a chain of forms, the different developments of the type occurring either at horizontally or vertically different localities, being linked by transitory stages on intermediate areas. Among the forms which I name *transitans* and *intermedia* we find specimens which may with equal right be referred to *kuesteri* or to *goniomphala*.

9.—Trochomorpha (Nigritella) alta (Pease).

T. imperforata, elate trochiformis, solida, transverse curvatim plicato-striatula, fusca aut brunnea, rarius flavida, opaca. Spira valde elevata lateribus convexiusculis apice obtuso. Anfr. $6\frac{1}{2}$ planulati, sutura per carinam subexsertam marginata disjuncti, ultimus acute carinatus, basi fere planus, medio excavatus. Apertura maxime obliqua, trapezoidea, peristoma rectum, obtusum, margine supero medio valde protracto, basali sigmoideo, intus calloso-labiato, columella valde calloso-incrassata.

Diam. 14.75, alt. 9.5 mm.
 ,, 15.5, ,, 10 mm.
 ,, 15.7, ,, 11 mm.

Diam. 16, alt. 9.5 mm.
 ,, 16, ,, 10.5 mm.

Helix alta, Pease, Am. Journ. Conch., 1868, iv, p. 153, t. 12, f. i.—
 Pfr., Mon. Hel., vii, p. 69.—*Tr. alta*, Pse., P.Z.S., 1871,
 p. 474.—Tryon, Man. Conch., iii, p. 73, t. 14, f. 91.

Hab.—Ponape (Pease, Etscheid, Kubary).

Pease's description and figure were evidently based on an imperfect specimen, not fully grown. He gives the dimensions as 10.9 mm., with only 6 whorls, and does not describe the peristome. I received adult examples in great numbers and have thought it advisable to publish a new diagnosis. By the absence of perforation, the sigmoid shape of the basal margin of the peristome, and the elevated conical spire, somewhat resembles certain species of *Dendrotrochus* (*Trochonanina*, auctt.), but there can be no doubt that it belongs to the group of *Trochomorpha kuesteri* and must be referred to the same genus as that species. Unfortunately I have not received living examples of either.

10.—*Trochomorpha (Nigritella) nigritella* (Pfr.).

T. modice sed pervie umbilicata, conoideo-depressa, solidiuscula, plicato-striatula, et lineis spiralibus rugulosis microscopice decussata, aut concolor atrofusca aut basi fusca, taenia angusta infra, altera latione supra peripheriam flavescens ornata. Spira conoidea lateribus convexis, plus minusve elevata. Anfr. 6 convexiusculi, sutura submarginata crenulata disjuncti, ultimus acute carinatus, basi convexiusculus, ad umbilicum declivis. Apertura maxime obliqua, securiformis, peristoma simplex, margine supero antrorsum arcuato, valde deflexo, infero bene curvato, sublabiato, reflexo.

Diam. 14.5, alt. 8 mm.

,, 13 ,, 8.5 mm.

Helix nigritella, Pfr., in Phil. Icon., ii, 9, p. 4, t. 6, f. 8—Chemn., ed. ii, *Helix* no. 602, t. 94, figs. 1—4.—Mon. Hel., i, p. 205.—*Tr. nigritella*, Pease, J. de Conchyl., 1870, xviii, p. 400.—P.Z.S., 1871, p. 457 (cum var. *oppressa*).—Tryon, Man. Conch., iii, p. 78, t. 15, figs. 35—37.

Hab.—Ponape (Hochstetter, Pease, Etscheid, Kubary).

The variety *oppressa*, Pse., is merely one of the many individual forms of this variable species. There are more or less elevated variations both of the plain brown and of the banded forms. The convexity of the base changes occasionally to flatness.

10a.—*Trochomorpha nigritella* sub-sp. *contigua*, Pease.

Spira plerumque magis elevata, anfr. 6—7 minus convexi, ultimus basi planulatus aut subconcausus.

Diam. 9, alt. 10 mm. (Pease).	Diam. 12, alt. 8.5 mm.
„ 9.5, „ 8 mm.	„ 13, „ 8.5 mm.
„ 10, „ 10 mm.	„ 13, „ 7.5 mm.
„ 10.5, „ 9.25 mm.	„ 13.5, „ 10 mm.
„ 10.5, „ 9.75 mm.	„ 14, „ 10 mm.
„ 11, „ 8 mm. (Pease).	„ 14.5, „ 8.5 mm.
„ 11, „ 9 mm.	„ 15, „ 9.5 mm.
„ 11.5, „ 10.5 mm.	

Helix congrua, Pease, Am. Journ. Conch., 1868, iv, p. 154, t. 12, figs. 3—4.—*Tr. contigua*, Pease, P.Z.S., 1871, p. 457.—Tryon, Man. Conch., iii, p. 78, t. 15, figs. 38—39.—*Helix contigua*, Pfr., Mon. Hel., vii, p. 289.

Hab.—Ponape (Pease, Etscheid, Kubary).

Pfeiffer has already doubted the validity of Pease's species ("nonne varietatibus *H. nigritellae*, speciei forma pervariabilis, adnumeranda?") and I can only admit it as a sub-species after examination of many hundred examples. The spire is higher on an average, but *T. nigritella* varies likewise in that respect, so that the highest forms of the latter are higher than the lower ones of *contigua*. The base is flat instead of slightly convex, and sometimes even excavated, but there are transitory forms of *nigritella* with almost flattened base. The two races do not seem to live promiscuously in the same locality inasmuch as I received in one box only *contigua*, in another only *nigritella*.

There are more colour varieties of the sub-species than of the type, viz., *atrusca*, *castanea*, *taeniata*, *brunnea*, *fulva* and *flava*.

Fam. PHENACOHELICIDAE, Suter.

(= Endodontidae, Pilsbry, ex parte.)

As I have said elsewhere¹ I consider Pilsbry's arrangement of including the well-defined family of *Phenacohelicidae*, Suter (= *Charo-pidae*, Hutton) within his *Endodontidae* as a regrettable step backwards. The two families are not only conchologically well distinguished, but have different types of jaw and radula and the *Phenacohelicidae* possess a mucous pore.

11.—*Flammulina (Calymna) nigrescens*, n. sp.

T. anguste perforata, discoidea, tenuis, subpellucida, confertim costulato-striata, lineis spiralibus microscopicis decussata, cuticula nigrescente costulata ad peripheriam subfimbriata obducta, opaca, fusca. Spira plana aut paullum immersa. Anfr. 3½ rapide accrescentes, convexiusculi, sutura profunda disjuncti, ultimus subangulatus,

¹ N. Bl. D. M. G., 1895, p. 157 and 1899, p. 23.

basi convexior. Apertura valde obliqua, ampla, late cordiformis, peristoma rectum, acutum, margo columellaris paullum dilatatus.

Diam. maj. 4.5, min. 3.25, alt. 2 mm.

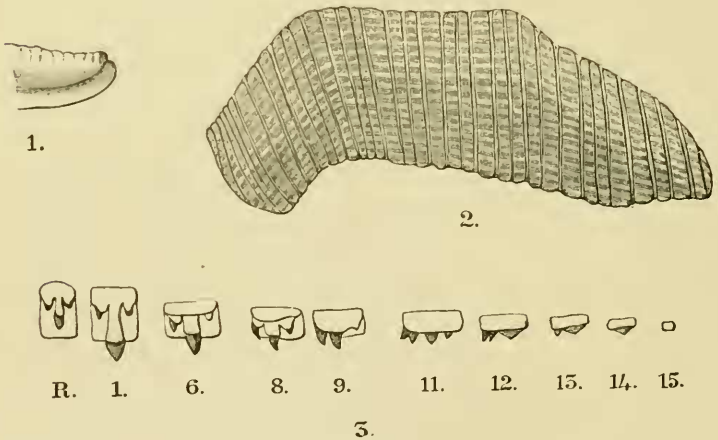
Hab.—Naupilo on Ponape, at about 100 m. altitude (Kubary).

When I received this curious little shell, I felt convinced that it belonged to *Flammulina*, but in order to make sure, I sent it to Mr. Suter who sends me the following as the result of his investigations.

“*Flammulina* (s. str.) *nigrescens*, Mlldff., from Ponape, Carolines.

“Two specimens, containing the dried-up animals, of this very interesting mollusc were kindly sent to me by Dr. O. F. von Moellendorff, suggesting that the species might prove to belong to *Flammulina*, as it resembles very much some New Zealand species with ribbed whorls.

“After immersion in dilute caustic potash the foot of one of the specimens became wholly extended, and I was able to ascertain with certainty the presence of a peripodial groove, a broad pallial margin, and a *caudal gland* (fig. 1).



Flammulina (s. str.) *nigrescens*, Mlldff.

Fig. 1.—Posterior part of foot after immersion in dilute caustic potash, magnified.
 Fig. 2.—Jaw. × 240. Drawn with camera lucida.
 Fig. 3.—Teeth of radula. × 480.

"The *jaw* (fig 2) is regularly arcuate, but became somewhat distorted in mounting, hence the different form as shown in my drawing. It consists of numerous, partly unequal, separate vertical lamellae, which are distinctly reticulated by numerous and close transverse striae, a feature sometimes observed in *Gerontia* and *Phasis*, though much less conspicuous.

"The *radula* (fig. 3) has the formula 10-5-1-5-10 and there are about 110 transverse rows of these teeth. The last marginal tooth consists of a minute plate only, the following has a low mesocone, the 13th a small entocone besides the mesocone, on the 12th the entocone is bifid, but there is still no ectocone. The 11th marginal has a minute ectocone, a mesocone and a (not always) bifid entocone. The 10th to 8th marginals become higher and narrower, the ectocone is rudimentary, but the mesocone and entocone are longer, the latter no more bifid. The 7th and 6th tooth may be considered to form the transition to the laterals; the plate is becoming higher, the mesodont longer, with its cutting point reaching beyond the posterior margin of the base, the endodont is better developed than the ectodont. The five laterals have a long mesodont, its cusp extending beyond the base, whilst the side-cusps remain small, the entocone however being a trifle larger.

"The rhachidian tooth, also tricuspid, is narrower, the mesodont more slender and shorter, not reaching to the posterior margin of the plate, and the side-cusps are minute.

"The foregoing shows that it is not only the shell that resembles certain forms of New Zealand *Flammulina*; the presence of a peripodial groove, a caudal pore, the plaited jaw and the radula clearly indicate that it must be classed under *Flammulina*."—HENRY SUTER.

This confirmation of my classification is interesting for two reasons. Firstly it proves that shell characters are not by any means so unimportant as modern malacology tends to consider them, and secondly that the *Phenacohelicidae* extend much more to the North than hitherto known, the most northern habitat observed being New Caledonia.

Fam. **PATULIDAE**, Mlldff.

(**Endodontidae**, Pilsbry, ex parte.)

If we expunge *Flammulina* from Pilsbry's ill-assorted family, there remains no reason to change the name published long before his.

12.—Charopa ualanensis (Pease.) em.

Helix oualanensis, Pease, Amer. Journ. Conch., 1866, ii, t. 21, f. i.—
Helix (Punctum) oualanensis, Tryon, Man. Conch., iii, p.

41, t. 8, figs. 62—64.—*Endodonta (Charopa) oualanensis*,
Pilsbry in Tryon, Man. Conch., ix, p. 35.

Hab.—Kusaye, Ualan (Pease).

I have not seen this species.

13.—*Charopa kubaryi*, n. sp.

T. modice sed aperte et subcylindrice umbilicata, discina, solidula, confertim costulata, brunnea. Spira immersa, leviter concava. Anfr. 4 convexiusculi, sutura profunde impressa disjuncti, ultimus bene convexus. Apertura parum obliqua, ovalis, modice excisa, peristoma rectum, acutum, supra ad insertionem recedens, medio protractum.

Diam. 4, alt. 1.75 mm.

Hab.—Ponape (Kubary).

14.—*Charopa ponapica*, n. sp.

T. mediocriter umbilicata, discoidea, tenuis, costulis bene exsertis acutis flexuosis sat distantibus sculpta, fusca. Spira fere plana, vix prominula. Anfr. $3\frac{1}{2}$ convexiusculi, sutura profunda subcanaliculata disjuncti, ultimus bene convexus, prope suturam subangulatus. Apertura subcircularis, modice excisa, peristoma rectum, acutum.

Diam. 2, alt. 0.9 mm.

Hab.—Ponape (Etscheid).

15.—*Endodonta (Thaumatodon) callizona*, n. sp.

T. aperte umbilicata, discoidea, solidula, confertim costulata, sericina, superne et basi fusca, ad peripheriam zona lata flavida picta. Spira plana. Anfr. 5 lentissime accrescentes, sutura profunde impressa disjuncti, ultimus lateraliter compressus. Apertura fere verticalis, angusta, peristoma rectum, acutum. Lamellae parietales 3 sat tenues, longe intrantes, intus altiores, palatales 6—7 validae, profundae.

Diam. 2.2, alt. 0.9 mm.

Hab.—Ponape (Etscheid).

Young examples of this pretty little shell possess lamellae which are dissolved in the course of growing. There are some colour variations, the yellow girdle is sometimes divided by a narrow brown band or (rarely) disappears altogether.

Var. nov. *tumidula*. A little higher and more narrowly umbilicated; 2.4:1.3 mm.

Hab.—Mpomp and Naupilo, Ponape (Kubary).

Fam. EULOTIDAE.

16.—*Eulota (Eulotella) mironesica*, n. sp.

T. angustissime perforata, depresso-subtrochiformis, tenuiuscula, subpellucida, subtiliter plicato-striatula, lineis spiralibus microscopicis

decussatula, nitidula, corneo-lutescens. Spira mediocriter elevata, lateribus fere strictis. Anfr. fere 3 convexiusculi, sutura per carinam subexsertam filiformi disjuncti, ultimus ad peripheriam subacute carinatus, antice dilatatus. Apertura sat ampla, fere diagonalis, oblique elliptica, sat excisa, peristoma paullum expansum.

Diam. maj. 13·5, min. 11, alt. 9·2; apert. lat. 7·5, long. 7, alt. 5·5 mm.

Hab.—Ponape, in the hills (Etscheid).

The discovery of this shell was a great surprise, especially as the locality renders the introduction with cultivated plants highly improbable. Also I do not know of any species of *Eulotella* nearly related to it.

Fam. **HELICIDAE.**

17.—*Pupisoma philippicum*, Mildff.

N. Bl. D. M. G., 1888, p. 108; Jahrb. Senck. Nat. Ges., 1890, p. 223, t. 8, f. 4.—Tryon, Man. Conch., ix, p. 52, t. 14, figs. 43—44.

Hab.—Ponape (Kubary). Most probably introduced from the Philippine Islands, like the *Kaliellae*.

Pilsbry includes this curious genus in the *Patulidae*, but I still believe its nearest allies are *Acanthinula* and *Zoogenites*.

Fam. **PLECTOPYLIDAE.**

18.—*Brazieria velata* (Hombr. et Jacq.).

Helix velata, H. and J., Voy. Pol. Sud. Atl., t. 6, figs. 29—32 (absque descriptione).—Pfr., Mon. Hel., iv, p. 155.—*Trochomorpha velata*, Pease, P. Z. S., 1871, p. 474.—*Helix (Endodonta) velata*, Tryon, Man. Conch., iii, p. 61, t. ii, figs. 89—91.—*Brazieria velata*, Ancey, Conch. Exch., 1887, ii, p. 22.—*Endodonta (Brazieria) velata*, Pilsbry in Tryon, Man. Conch., ix, p. 29, t. 5, figs. 49—51.

Hab.—Hogolu (Hombr. et Jacq., Brazier), Lukunor or Mortlock (Brazier).

As Pilsbry justly says, we cannot regard the generic relationship of this mollusc as established until the soft parts are investigated. However, the conchological characters alone, especially the thickened lip and the parietal callus elevated into a lamella, seem to preclude any relation to *Endodonta* or *Charopa*. I am all but sure that it will prove to be nearly related to *Plectopylis*. We discovered a similar, but much smaller species, in the Philippine Archipelago which I described at first as *Plectopylis*, later as *Brazieria coarctata*.¹

Fam. BULIMIDAE.

19.—*Partula rufa* (Lesson).

Partula rufa, Less., Voy. Coqu. Zool., 1830, ii, 2, p. 324.—Pfr., Mon. Hel., iii, p. 449.—Marts., Conch. Mitth., 1881, i, p. 94.—*Bulimus rufus*, Pfr., Mon. Hel., ii, p. 229.

Hab.—Kusaye, Ualan (Lesson).

Prof. v. Martens declares this species to be identical with the *Partula* of Ponape, which is well known by the name of *P. guamensis*. Lesson's description gives, however, the dimensions as 4:8 lin. or about 9:18 mm. If these measurements were correct, then the *Partula* of Ualan must be a much smaller and more slender shell than *guamensis*. I therefore treat the Ponape races as sub-species.

19a.—*Partula rufa*, sub-sp. *montana*, nov.

Bulimus guamensis, Pfr., Phil. Abb., ii, p. 113, Bul. t. 4, f. 9.—Mon. Hel., ii, p. 13.—*Partula guamensis*, Pfr., Mon. Hel., iii, p. 446.—*P. rufa*, Marts., Conch. Mitth., 1881, i, p. 95, t. 17, figs. 12—16.

Hab.—Ponape, ruins of Nanmatal (Finsch), in the hills (Etscheid, Kubary).

Whorls 5, very distinctly spirally striate, rather solid. Diam. 15, alt. 26 mm. (Pfr.), 16.26 (Marts.), 18.26 (the broadest of my own specimens).

The name *guamensis* cannot be retained inasmuch as this mollusc does certainly not live on the island of Guam, where my friend Quadras collected more than two months without finding it.

19b.—*Partula rufa*, sub-sp. *grandis* nov.

Much larger, diam. 19, alt. 30.5 mm., less solid, spiral sculpture somewhat less marked, peristome more expanded, less labiate, $5\frac{3}{4}$ to nearly 6 whorls.

Hab.—Ponape, coast region (Etscheid, Kubary).

There are three colour variations, viz., dark purple-brown with violet lip (typical), *castanea*, pale chestnut coloured with white lip, and *flavescens*, pale greenish yellow. The last-named albino is rather rare.

Fam. PUPIDAE.

20.—*Vertigo (Ptychochilus) eapensis* (Bttgr.). (rectius yapensis).

Pupa (Ptychochilus) eapensis, Bttgr., in Marts. Conch. Mitth., 1881, i, p. 56, t. 11, f. 11.

Hab.—Yap (Boettger), Palao or Pelew Islands (Kubary).

21.—*Vertigo (Ptychochilus) ponapica*, n. sp.

T. perforato-rimata, ovato-oblonga, tenuiter et distanter costulata, sericina, brunnea. Spira subtus sub-cylindrica, sursum conoidea, apice obtuso. Anfr. 5 modice convexi, ultimus basi sub-compressus, extus pone aperturam profunde et longe scrobiculato-impressus. Apertura fere verticalis, rotundato-trapezoidalis, peristoma modice expansum, rufo-labiatum, extus distincte sinuatum, marginibus callo tenuissimo junctis. Dentes 6, columellaris recedens; palatales 3, inferi 2 profundi, breves, tertius longus, validus; angularis validus, longe intrans, parietalis a margine remotus, angulari approximatus.

Diam. 1, alt. 1.75 mm.

Hab.—Mpomp, Ponape (Kubary).

This minute shell belongs to the group of *V. tantilla*, Gld., and might be considered, like the preceding form, to be merely a representative sub-species of that species widely distributed over Polynesia.

22.—*Leucochilus pediculus* (Shuttl.).

See Bttgr. in Marts., Conch. Mitth., i, p. 65.

Hab.—Yap (Kubary).

Found, according to Boettger, on the Marquesas, Society, Hervey, Samoa, Tonga, Viti, Ellice, Hapai and Marshall Islands, New Caledonia and Hawaii, to which I can add the Mariannes and Philippine Islands. It seems to be easily introduced with cultivated plants.

Fam. STENOGYRIDAE.

23.—*Prosopeas carolinum* (Marts.).

Stenogyra carolina, Marts., Conch. Mitth., 1881, i, p. 93, t. 17, figs. 6—8.

Hab.—Hogolu = Ruk (Kubary).

A rather large species, $5\frac{1}{2}$: 22 mm., related to the Philippine *Prosopeas* like *pagoda*, Semp., and quite isolated in the Micronesian fauna.

24.—*Opeas gracile* (Hutt.).

Hab.—Yap, Ponape (Kubary).

25.—*Opeas tuckeri* (Pfr.).

See Garrett, P. Z. S., 1887, p. 185.

Hab.—Yap, Ponape (Kubary).

Garrett justly includes *Bulimus junceus*, Gld., *walli*, Cox, *diaphanus*, Gass., *souverbieanus*, Gass., *artensis*, Gass., *Stenogyra upolensis*, Mouss., and *novemgyrata*, Mouss., in the synonymy of this widely distributed mollusc, but I doubt very much that *O. panayense*, Pfr.,

is the same species. I consider the Philippine form to be identical with *O. gracile*, Hutt.

26.—*Opeas pruinosum*, n.sp.

T. vix rimata, ventricosulo-turrita, tenuis, confertim costulato-striata, squamulis membranaceis brevissimis valde deciduis oblecta, sericina, pallide griseo-straminea. Spira turrita lateribus convexiusculis, apice obtusulo. Anfr. 9 convexiusculi sutura sat profunda disjuncti. Apertura verticalis, subrhomboidalis, peristoma rectum, acutum, margine externo antrorsum arcuato, columellari reflexo appresso.

Diam. 4.75, alt. 12.75 mm.

Hab.—Ponape (Etscheid, Kubary).

This species belongs to the group of *O. clavulinum*, Pot. et Mich., but is well characterised by the curious sculpture which gives it a somewhat hoary aspect.

27.—*Tornatellina ovatula*, n. sp.

T. imperforata, conoideo-ovata, tenuis, pellucida, subtilissime striatula, nitidula, pallide lutescens. Spira brevis, conoidea, apice obtuso. Anfr. 4 convexiusculi, sutura crenulata disjuncti, celeriter accrescentes, ultimus magnus, tumidulus. Apertura valde obliqua, ovalis, peristoma rectum, acutum, margine columellari brevissime reflexo, appresso. Lamella parietalis sat elevata, longe spiraliter intrans, columella valde torta, basi profunde excisa bidentata.

Diam. 2, alt. 3 mm.

Hab.—Ponape (Etscheid).

28.—*Tornatellina pusilla*, n. sp.

T. imperforata, elongate ovato-conica, tenuis, pellucida, subtiliter striatula, nitidula, pallide luteocornea. Spira sat elevata, apice obtusulo. Anfr. $4\frac{3}{4}$ convexiusculi, ultimus spiram aequans. Apertura sat obliqua, anguste ovalis, peristoma simplex, acutum. Lamella parietalis sat valida, alta, longe spiraliter recedens, columella subtruncata, valde torta, lamella humili spiraliter recedente munita.

Diam. 1.5, alt. 2.5 mm.

Hab.—Ponape (Etscheid).

29.—*Tornatellina gigas*, Marts.

Conch. Mitth., 1881, i, p. 92, t. 17, figs. 1—5.

Hab.—Hogolu = Ruk (Kubary).

Mr. C. F. Ancey has constituted a separate sub-genus for this aberrant form, viz., *Ochroderma* (Le Natural., 1885, p. 93).

Fam. **SUCCINEIDAE.****30.—Succinea (Brachyspira) guamensis**, Pfr.

Mon. Hel., iv, p. 805.

Hab.—Ponape (Etscheid).

Pfeiffer states Guam as the habitat of this species, but Quadras found no *Brachyspira* on that island. My specimens from Ponape, and from Corror of the Pelew islands are smaller, but otherwise agree well with Pfeiffer's description.

Fam. **AURICULIDAE.****31.—Pythia acuta** (Hombr. et Jacq.).

Scarabus acutus, H. et J., Voy. Pol. Sud. Zool., iv, p. 39, t. 10, figs.

1—3.—*Pythia acuta*, Pfr., Aur., p. 98.

Hab.—Hogolu = Ruk (H. et J.), Ponape (Kubary).

32.—Cassidula philippinarum, Hidalgo.

J. de Conchyl., 1888, p. 53, t. vi, f. 7.

Hab.—Ponape (Kubary).

Fam. **DIPLOMMATINIDAE.****33.—Palaina (Eupalaina) doliolum** (Mouss.).

Mousson in sched., Mlldff., N. Bl. D. M. G., 1897, p. 41.—Kob. et

Mlldff., Cat. Pneum., *ibid.*, 1898, p. 132.

Hab.—Ponape (Mousson, Etscheid, Kubary).

This pretty little shell I received first from Mousson, who never published a description of it; he did not state who collected it. It was found in the bush on Ponape by my collectors in great numbers. By the pale band on the last whorl it resembles *P. taeniolata*, Q. and Mlldff., from Guam. As in that species, young specimens are white, the secretion of colour commencing when the shell is nearly adult. There are some rare colour varieties; uniform reddish or yellow.

34.—Palaina (Eupalaina) kubaryi, Mlldff.

N. Bl., 1897, p. 42.—Kob. et Mlldff., *ibid.*, 1898, p. 132.

Hab.—Ponape, in the hills (Kubary).

Longer than the preceding species, the costulation much narrower, no band, peristome duplicate, not triplicate.

35.—Palaina (Eupalaina) ovatula, Mlldff.

N. Bl., 1897, p. 42.—Kob. et Mlldff., *ibid.*, 1898, p. 132.

Hab.—Ponape (Etscheid, Kubary).

Much smaller, costulate-striate, pale horn-coloured, only 5 whorls.

36.—*Palaina (Macropalaina) scalarina* (Mouss.).

Mouss. in sched. Mlldff., N. Bl., 1897, p. 43.—Kob. et Mlldff.,
 ibid., 1898, p. 134.

Hab.—Ponape (Mousson, Etscheid, Kubary).

37.—*Palaina (Macropalaina) xiphidium*, Mlldff.

N. Bl., 1897, p. 44.—Kob. et Mlldff., ibid., 1898, p. 134.

Hab.—Ponape, in the hills (Etscheid, Kubary).

These two species belong to my new section *Macropalaina*, which I proposed for some elongate and acuminate species like *P. pomatiaeformis*, Mouss. They both have, at the outer and at the columellar margin of the peristome, a wing-like process, which is much larger on the columella. *P. xiphidium* is longer and has a more slender spire, $\frac{1}{2}$ whorl more. the whorls are more convex, the ribs more distant, the colour darker, and the excision of the columellar margin deeper. I think, however, that intermediate forms may still be found and that *xiphidium* will prove to be merely a sub-species of *scalarina*.

Fam. PUPINIDAE.

38.—*Pupina difficilis*, O. Semp.

P.Z.S., 1864, p. 252.—J. de Conchyl., 1865, xiii, p. 407, t. 12, f. 8.—
 Pfr., Mon. Pneum., suppl. iii., p. 150.—Kob. et Mlldff.,
 N. Bl., 1897, p. 145.

Hab.—Yap (Kubary), Pelew Islands (C. Semper).

39.—*Pupina complanata* (Pease).

Registoma complanatum, Pease, P.Z.S., 1860, p. 440.—Pfr., Mon.
 Pneum., suppl. ii, p. 98.—*Rhegistoma complanata*, Marts.
 et Langkavel, Don. Bism., p. 58.—*Pupina (Registoma)*
complanata, Pfr., Pneum., suppl. iii, p. 152.—*Pupina*
(Pupina s. str.) complanata, Kob. et Mlldff., N. Bl., 1897,
 p. 145.

Hab.—Ponape (Etscheid, Kubary), Ebon (Pease), Ialuit (Dr. Steinbach), Marshall Islands.

I believe that Ponape is the original habitat of this species and that it was introduced on the different atolls of the Marshall group with cultivated plants (*Pandanus* or *Musa*). It is certainly not a *Registoma* (= *Moulinsia*), but a true *Pupina* of the typical group of *P. keraudreni*, Vign., the upper "canal" being somewhat obsolete by the slight development of the parietal callus.

40.—*Pupina brenchleyi*, Smith.

P.Z.S., 1891, t. 40, f. 8. (N. Bl. D. M. G., 1892, p. 176).

Hab.—Lugunor (Smith).

I have not seen this species nor have I been able to compare the description. I suspect it to be but a variety of one of the preceding species which differ very little from each other.

Fam. REALIIDAE.

41.—*Omphalotropis (Eurytropis) bulimoides* (Hombr. et Jacq.).

Cyclostoma bulimoides, H. et J., Voy. Pol. Sud. Zool., v, p. 52, t. 12, figs. 37—39.—*Hydrocena bul.*, Pfr., Mon. Pneum. suppl., i, p. 162 (ex parte).—*Omphalotropis bul.*, Pfr., ibid. suppl., ii, p. 176.—Pease, J. de Conchyl., 1869, p. 144.—*Realia bul.*, Pfr., Pneum. suppl. iii, p. 220 (ex parte).—*Omphalotropis (Eurytropis) bul.*, Kob. et Mlldff., N. Bl., 1898, p. 149.—*Assimineca bul.*, Marts., Ann. Mag. N. H. (3), xvii, p. 206, cf. Boettger, J. D. M. G., 1887, xiv, p. 215.—Marts., Sitz. Ber. Berlin Akad. Wiss., 1887, p. 264.—*Omphalotropis elongatula* var. *contracta*, Quadr. et Mlldff., N. Bl., 1894, p. 20.

Hab.—Hogolu = Ruk (Hombr. et Jacq.), Yap (Kubary), Guam, Mariannes (Quadras).

The true *O. bulimoides* was described from the island of Hogolu (= Ruk) and the localities Solomon Islands and New Ireland, as given by Pfeiffer and other authors are very doubtful. My specimens from Yap, which island is situated not very far from Ruk, agree very well with the original description, also with the *Omphalotropis* of Guam, which Quadras and myself published as var. *contracta* of our *O. elongatula*. If my identification is correct, then *O. elongatula* will have to be considered a sub-species of *bulimoides* and its varieties *brunnescens* and *chrystostoma* (l. c., p. 19) as colour varieties of that sub-species. The forms quoted as *O. bulimoides* from the Solomon Islands and New Ireland most probably belong to other species or are at least to be distinguished sub-specifically; I have not seen them as yet.

42.—*Omphalotropis (Eurytropis) coronata*, Mlldff.

N. Bl., 1897, p. 165.—Kob. et Mlldff., ibid., 1898, p. 149.

Hab.—Yap (Kubary).

Easily distinguished by the series of white callosities or minute knobs along the suture.

43.—*Omphalotropis carolinensis*, Smith.

P.Z.S., 1891, t. 40, f. 9 (N. Bl. D. M. G., 1892, p. 176).

Hab.—Lugunor (Smith).

44.—*Omphalotropis angulosa*, Ancey.

Le Natur., 1890, xii, no. 68, p. 11.

Hab.—Ponape (Ancey.).

45.—*Omphalotropis (Stenotropis) laevis* (Pease.).

Realia laevis, Pease, Amer. Journ. Conch., 1865, i, p. 289, ii, t. 5, f. 5.—Pfr., Mon., Pneum. suppl., iii, p. 227.—*Omphalotropis laevis*, Pease, J. de Conchyl., 1869, p. 148.—Kob. et Mlldff., N. Bl., 1898, p. 151.

Hab.—Ualan (Pease), Ponape (Pease, Etscheid, Kubary).

The name *laevis* is rather a misnomer, there is vertical and spiral striation. The angulation of the last whorl is sometimes developed into an obtuse keel. The colour, which Pease calls "fusco-cornea," varies a good deal from yellowish-horn colour to reddish brown. I count $5\frac{1}{2}$, not 5 whorls, which are not "convexi," but at most "convexiusculi." The preceding species, described by Ancey, is perhaps identical with *laevis*.

46.—*Omphalotropis (Stenotropis) tumidula*, Mlldff.

N. Bl., 1897, p. 168.—Kob. et Mlldff., *ibid.*, 1898, p. 152.

Hab.—Naupilo, Ponape (Kubary).

47.—*Garrettia carolinorum* (Mlldff.).

Diadema carolinorum, Mlldff., N. Bl., 1897, p. 168.—Kob. et Mlldff., *ibid.*, 1898, p. 156.

Hab.—Ponape (Etscheid, Kubary).

The name *Diadema*, Pse., cannot stand, being forstalled by Schumacher 1817 (Crust.), Gray 1825 (Echinod.), Boisd. 1832 (Lepidopt.). Paetel mentions *Garrettia*, Pease, as a synonym of *Diadema*, but I have not been able to find out whether that name was ever published or not. The genus, which was hitherto known from the Society, Harvey, Cook and Viti Islands, has according to Thiele¹ a radula of the type of *Omphalotropis* and belongs, therefore, to the *Realiidæ*. The Caroline species agrees well with the Polynesian forms in the general outline and the corneous, multispiral operculum with raised ridges.

47a.—*Garrettia carolinorum* sub-sp. *pyramis*, Mlldff.

Diadema carolinorum var. *pyramis*, Mlldff., N. Bl., 1897, p. 168.

Hab.—Naupilo, Ponape, about 100 m. altitude (Kubary).

Higher, 7 whorls instead of 6, the keel of the last whorl more or less evanescent.

47b.—*Garrettia carolinarum* sub-sp. *turrita*, Mlldff.

Diadema carolinarum var. *turrita*, Mlldff., l. c., p. 168.

Hab.—Meitik, Ponape (Kubary).

Still higher, $7\frac{1}{2}$ whorls, the last without any indication of the perispherical keel.

Without the knowledge of the preceding subspecies I should not have hesitated to describe this form as a separate species. But *pyramis* is exactly intermediate between it and the type and there can be no doubt that *turrita* is merely an extreme development of *carolinarum*.

48.—*Garrettia soluta* (Mlldff.).

Diadema solutum, Mlldff., N. Bl., 1897, p. 169.—Kob. et Mlldff., *ibid.*, 1898, p. 156.

Hab.—Ponape (Etscheid, Kubary).

By its shape and sculpture this remarkable little shell resembles some species of *Heteropoma* (Mariannes and Philippines), but it possesses a corneous multispiral operculum and must, therefore, be classed with *Garrettia*. It is well characterised by the free body whorl, disconnected for about $\frac{2}{3}$ of its length.

49.—*Quadrasiella ammonitella*, n. sp.

T. late et aperte umbilicata, discoidea, sat tenuis, confertim spiraliter lineata, costis crassiusculis distantibus sculpta, opaca, corneolutea. Spira parum emersa, apice mucronato glabrato. Anfr. 4 convexi, sutura profunde impressa, disjuncti, ultimus ad peripheriam nec non infra et supra illam distincte angulatus. Apertura vix obliqua, fere circularis, peristoma rectum, obtusum. Operculum intus corneum, multispirale, extus lamella cartilaginea plicatula, peristoma superante praeditum.

Diam. 3.2, alt. 1.5.

Hab.—Ponape, in the hills (Kubary).

The genus *Quadrasiella* was established by myself for two species discovered by Quadras on the island of Guam,¹ its chief characteristic being the operculum. This consists of an inner corneous lamella which overlaps the peristome somewhat in the manner of *Aulopoma*, and an outer calcareous one which is elongated above and below into a wing-like process. This outer calcareous lamella is wanting in the Caroline species, but the operculum is exactly like the inner lamella of that of *Quadrasiella*. It is possible that the outer lamella, which is easily broken off in the typical species, has fallen off from my two examples

¹ N. Bl., 1894, p. 38.

or that they are not quite full grown. The general shape of the shell, the sculpture and the mucronate apex agree very well with the species of Guam, and I have but little doubt that I am right in ascribing the shell of Ponape to *Quadrasiella*.

50.—*Gonatorhappe incisa* (Hombr. et Jacq.).

Cyclostoma incisa, H. et J., Voy. Pol. Sud. Zool., v, p. 49, t. 12, figs. 11—15.—*Cyclophorus incisus*, Pfr., Mon. Pneum. suppl., i, p. 54.—*Gonatorhappe incisa*, Kob. et Mlldff., N.Bl., 1898, p. 155.

Hab.—Hogolu = Ruk (Hombron et Jacquinot).

From the meagre description which Pfeiffer made "ex icone," I can only conclude that this species belongs to my genus *Gonatorhappe*, constituted for certain operculate shells of Melanesia and Polynesia, type *G. reclusiana*, Pfr. They have the general outline of *Cyclotus*, sharp spiral ribs, a more or less canaliculate suture, marginate by a keel or elevated line, and an operculum somewhat like that of *Cyclotus* but without the marginal channel. It has nothing to do either with *Cyclophorus* or *Cyclotus*, but belongs to the *Realiidae*.

Fam. TRUNCATELLIDAE.

51.—*Truncatella pacifica*, Pease.

Am. Journ. Conch., 1867, iii, p. 230, t. 15, f. 27.—Pfr., Mon. Pneum. suppl., iii, p. 15.

Hab.—Ualan (Pease), Ponape (Etscheid).

Closely related to *Tr. valida*, Pfr., and perhaps only a subspecies of that widely distributed species.

Fam. HELICINIDAE.

52.—*Helicina (Pleuropoma) humilis*, Hombr. et Jacq.

H. et J., Voy. Pol. Sud. Zool., v, p. 45, t. 11, figs. 27—31.—Pfr., Mon. Pneum. suppl., i, p. 189.

Hab.—Hogolu = Ruk (H. et J.), Ponape (Etscheid, Kubary).

Fresh examples show some spiral, elevated, membranaceous lines, which are easily rubbed off. The operculum is typical of my subgenus *Pleuropoma*.

53.—*Helicina (Pleuropoma) zigzag*, Pse.

Am. Journ. Conch., 1867, iii, p. 229, t. 15, f. 26.—Pfr., Mon. Pneum. suppl., iii, p. 280.

Hab.—Ualan (Pease), Ponape (Etscheid, Kubary).

My examples from Ponape agree in part with Pease's description, but some are larger, up to $9\frac{1}{4} : 5\frac{2}{3}$ mm., thinner and less sharply keeled.

I cannot ascertain whether the latter variety lives with the type or forms a local race on a different part of the island.

54.—*Helicina (Sulfurina) carolinarum*, n. sp.

T. depresso globosa, tenuiuscula, subtilissime striatula, parum nitens, flava, interdum taenia lata ignea ornata. Anfr. $4\frac{1}{2}$ planulati, sutura appressa, submarginata, disjuncti, ultimus ad peripheriam confuse subangulatus. Apertura sat obliqua, rotundato-triangularis, peristoma superne rectum, acutum, basi subexpansum, obtusum, columella brevis, crassiuscula, callum latum, granulosum, emittens.

Diam. 4, alt. 2.75 mm.

Hab.—Ponape (Kubary).

55.—*Helicina zonata*, Less.

Lesson, Voy. Coqu. Zool., ii, 1, p. 350.—Pfr., Mon. Pneum., p. 358.

Hab.—Ualan (Lesson).

Probably a *Pleuropoma* and perhaps identical with or nearly related to *H. zigzag*, Pse.

Fam. HYDROCAENIDAE.

56.—*Georissa rufula*, n. sp.

T. rimata, ovato-conica, solidiuscula, transverse subtiliter striatula, sculptura spirali, sub lente fortiori, haud discernenda, nitidiuscula, rufo-fulva. Anfr. $4\frac{1}{2}$ bene convexi, sutura profunde impressa disjuncti, ultimus paulisper descendens. Apertura sat obliqua, ovalis, peristoma simplex, rectum, obtusum, marginibus callo validiusculo junctis, columella reflexa, valde dilatata, late appressa.

Diam. 1.5, alt, 2.1 mm.

Hab.—Ponape (Etscheid).

These lists are naturally very incomplete and if Ponape appears to possess a much richer fauna than the rest of the islands, the reason is certainly not only its greater size and the higher altitude of its hills, but chiefly the fact that it has been better explored than the other atolls. I am convinced that even Ponape will still yield a number of additional species, when a thorough investigation of the hills has been made. My lamented friend Kubary had only just begun to collect in the higher regions when he died. It seems to me that it is too early yet to base geographical conclusions on the scant material now at our disposal. It will be useful, however, to give a comparative list of the species hitherto known from the three groups of Micronesia.

GENERA AND SUBGENERA.	MARIANNES.	PELEWS.	CAROLINES.
<i>Ennea</i>	<i>bicolor</i>		
<i>Concuplecta</i>		<i>pagodula</i>	
<i>Lamprocystis</i>	<i>misella</i> , <i>? succinulata</i>	<i>palaënsis</i> , <i>wilsoni</i> , <i>margaritacea</i> , <i>straminea</i>	<i>palaënsis</i> , <i>frivola</i>
<i>Microcystina</i>	<i>denticulata</i>		
<i>Kaliella</i>	<i>doliolum</i>		<i>doliolum</i> , <i>tenuisculpta</i>
<i>Hemiplecta</i>			<i>sowerbyana</i>
<i>Trochomorpha</i>		<i>oleacina</i> , <i>electra</i> , <i>? swainsoni</i>	<i>approximata</i> , <i>entomostoma</i> , <i>kuesteri</i> , <i>alta</i> , <i>nigritella</i>
<i>Flammulina</i>			<i>nigrescens</i>
<i>Charopa</i>	<i>fusca</i> , <i>rotula</i> , <i>quadrasi</i>		<i>ualanensis</i> , <i>kubaryi</i> , <i>ponapica</i>
<i>Endoiontu</i>	<i>mariannarum</i> , <i>heptapychia</i>	<i>constricta</i> , <i>irregularis</i> , <i>lacerata</i> , <i>kororensis</i> , <i>fuscozonata</i>	<i>callizona</i>
<i>Eulota</i>			<i>miconesica</i>
<i>Chloraea</i>		<i>? pelawiana</i>	
<i>Pupisoma</i>			<i>philippinicum</i>
<i>Brazieria</i>			<i>velata</i>
<i>Partula</i>	<i>radiolata</i> , <i>gibba</i> , <i>bicolor</i> , <i>mastersi</i> , <i>fragilis</i> , <i>quadrasi</i>	<i>calypso</i> , <i>thetis</i> , <i>leucothoe</i>	<i>rufa</i>
<i>Vertigo</i> (<i>Ptychochilus</i>)	<i>quadrasi</i>		<i>eapensis</i> , <i>ponapica</i>
<i>Leucochilus</i>	<i>pediculus</i>		<i>pediculus</i>
<i>Prosopias</i>			<i>carolinum</i>
<i>Opcas</i>	<i>gracile</i> , <i>tuckeri</i>		<i>gracile</i> , <i>tuckeri</i>
<i>Tornatellina</i> ,, (<i>Lamellina</i>) ,, (<i>Ochroderma</i>)	<i>quadrasi</i> <i>microstoma</i> <i>subcylindrica</i>		<i>ovatula</i> , <i>pusilla</i> <i>gigas</i>
<i>Geostilbia</i>	<i>philippinica</i>		
<i>Succinea</i>	<i>guamensis</i> , <i>quadrasi</i> , <i>piratarum</i>		<i>guamensis</i>

GENERA AND SUBGENERA.	MARIANNES.	PELEWS.	CAROLINES.
<i>Acmella</i> (<i>Solonomphala</i>)	<i>conica</i>		
<i>Heteropoma</i>	<i>fulvum,</i> <i>glabratum,</i> <i>pyramis,</i> <i>quadrasi,</i> <i>tuberculatum,</i> <i>turritum</i>		
<i>Gonatorhapha</i>			<i>incisa</i>
<i>Quadrasiella</i>	<i>clathrata,</i> <i>mucronata</i>		<i>ammonitella</i>
<i>Garrettia</i>			<i>carolinarum,</i> <i>solutum</i>
<i>Tahcitia</i>	<i>alata,</i> <i>lumellicosta,</i> <i>parvula</i> <i>labiosa-robusta</i> <i>expansilabris</i>		
<i>Truncatella</i>	<i>mariannarum</i> <i>subauriculata,</i> <i>vitiana</i>		<i>pacifica</i>
<i>Helicina</i> (<i>Pleuropoma</i>) ,, (<i>Sulfurina</i>)			<i>humilis, zigzag,</i> <i>zonata,</i> <i>carolinarum</i>
<i>Georissa</i>	<i>elegans,</i> <i>biangulata,</i> <i>lacvigata</i>		<i>rufula</i>

The Land Shells as enumerated above are distributed on the different islands as follows :

GENUS.	YAP.	RUK. (HOGOLU).	LUGUNOR. (MORTLOCK).	PONAPE.	UALAN.
<i>Lamprocyctis</i>	<i>palaënsis</i>	—	—	—	<i>frivola</i>
<i>Katella</i>	—	—	—	<i>doliolum</i> <i>tenaisculpta</i>	—
"	—	<i>soerbyana</i>	—	<i>kuasteri</i>	—
<i>Hemiplecta</i>	—	<i>approximata</i>	—	" <i>transitans</i>	—
<i>Trochomorpha</i>	—	<i>entomostoma</i>	—	" <i>goniophthalma</i>	—
"	—	—	—	" <i>intermedia</i>	—
"	—	—	—	<i>alba</i>	—
"	—	—	—	<i>nigritella</i>	—
"	—	—	—	" <i>contigua</i>	—
<i>Flammulina</i>	—	—	—	<i>nigrescens</i>	—
<i>Charopca</i>	—	—	—	<i>kubargi</i>	<i>ualauensis</i>
"	—	—	—	<i>ponapica</i>	—
<i>Endodontia</i>	—	—	—	<i>callizona</i>	—
"	—	—	—	" <i>tandata</i>	—
<i>Eulota</i>	—	—	—	" <i>micronesica</i>	—
<i>Papisona</i>	—	—	—	<i>philippinicum</i>	—
<i>Braczeria</i>	—	—	—	—	—
<i>Partula</i>	—	<i>velata</i>	<i>velata</i>	—	<i>rufa</i>
"	—	—	—	<i>rufa montana</i>	—
<i>Vertigo</i>	—	—	—	" <i>grandis</i>	—
<i>Leucokilius</i>	<i>capensis</i>	—	—	<i>ponapica</i>	—
<i>Prosopaea</i>	<i>pediculus</i>	—	—	—	—
<i>Opaea</i>	<i>gracile</i>	<i>carolinum</i>	—	<i>gracile</i>	—
"	<i>tuckeri</i>	—	—	<i>tuckeri</i>	<i>pruinosum</i>
"	—	—	—	—	—

GENUS.	YAP.	RUK. (HOGOLU).	LUGUNOR. (MORTLOCK).	PONAPE.	UALAN.
<i>Tornatellina</i>	—	—	—	<i>ovata</i>	—
"	—	<i>gigas</i>	—	<i>pusilla</i>	—
<i>Succinea</i>	—	—	—	<i>guamensis</i>	—
<i>Pythia</i>	—	<i>acuta</i>	—	<i>acuta</i>	—
<i>Cassidula</i>	—	—	—	<i>philippinaram</i>	—
<i>Pulchra</i>	—	—	—	<i>doliolum</i>	—
"	—	—	—	<i>kubaryi</i>	—
"	—	—	—	<i>ovata</i>	—
"	—	—	—	<i>sealarina</i>	—
"	—	—	—	<i>riphidum</i>	—
<i>Pupina</i>	<i>difficilis</i>	—	—	<i>complanata</i>	—
<i>Omphalotropis</i>	<i>butinoides</i>	<i>butinoides</i>	<i>branchi</i>	—	—
"	<i>coronata</i>	—	<i>carolinensis</i>	—	—
"	—	—	—	<i>laevis</i>	<i>laevis</i>
"	—	—	—	<i>angulosa</i>	—
"	—	—	—	<i>tumidula</i>	—
"	—	—	—	<i>carolinaram</i>	—
<i>Garretia</i>	—	—	—	"	<i>pyramis</i>
"	—	—	—	"	<i>turrida</i>
"	—	—	—	<i>annovittella</i>	—
<i>Quadrasiella</i>	—	—	—	—	<i>pacifica</i>
<i>Gonatorhapha</i>	—	<i>incisa</i>	—	<i>pacifica</i>	—
<i>Truncatella</i>	—	<i>humilis</i>	—	<i>humilis</i>	—
<i>Helicina</i>	—	—	—	<i>zigzag</i>	<i>zigzag</i>
"	—	—	—	—	<i>zonata</i>
"	—	—	—	<i>carolinaram</i>	—
<i>Georissa</i>	—	—	—	<i>rufata</i>	—